Blueprint for Waste Management in Ontario

Appendix 3

Perpetual Care Program Report

Ontario

Ministry of the Environment

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This is one of 11 appendices to the Blueprint for Waste Management. A complete list is presented on the inside of the back cover.

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APPENDIX 3
PERPETUAL CARE PROGRAM REPORT

No matter how carefully a waste management facility is operated or how carefully proposals are reviewed before approval is granted, there is the possibility that environmental impairment can occur. This Appendix outlines a number of suggestions which could ensure that legislative and financial mechanisms are always available to deal with unforeseen events that may impair the environment. Readers' comments are invited to assist in formulating a course of action.

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APPENDIX 3

PERPETUAL CARE PROGRAM REPORT

1.0 PREAMBLE

Waste management is regulated under Part V of the Environmental Protection Act with the purpose of ensuring that waste management facilities will be established, utilized and eventually closed without adverse environmental effects. Realistically, this ideal is not likely to be reached. In most cases adverse environmental impacts can be held to insignificant levels by proper design, operation and closure. The few more serious cases can be corrected and controlled. From a practical standpoint it is desirable to provide mechanisms designed to remedy problems which may occur as well as encourage progress towards the ideal.

Problems resulting from waste management facilities can occur at any time during their active life or thereafter, if waste remains at the site, as in a landfill, or in cases of accidental spills at a transfer station or processing facility where waste is not intended to remain. Funds should be available to remedy any problems and to provide compensation to those who might suffer resultant harm. During the site's active period the site operator is present and can be held accountable. After site closure, however, there may be no one to call upon or no money available to deal with problems. Although problems are most likely to become evident during site operations or shortly thereafter, a small and diminishing chance of unanticipated problems remains in perpetuity. This points to the need for a perpetual care program.

Financial commitment is a key component of any ongoing provisions for effective environmental protection at waste management facilities. There must be an assured source of funds and a clear delineation of responsibility and authority.

Prior to 1971, little or no government control was exercised over the disposal of waste in Ontario. After the introduction of legislation, it required several years to organize and implement effective systems of control.

Waste management technology is still comparatively new. Advances have been made but further improvements in technology and in the understanding of waste disposal mechanisms are required in order to solve associated problems. Accordingly, a Perpetual Care Task Force was set up within the Ministry of the Environment and an interim report was issued in August 1979.

The Task Force advanced a number of conclusions which are still relevant, both with respect to technical aspects of waste management where problems might be expected and to the challenge of providing remedies. The Task Force also suggested a functional division of the area where assurance of effective environmental protection is desirable:

1) assurance that problems on-site can be detected, remedied or avoided during site operation and closure;

2) assurance that persons off-site will be protected or compensated for harm during site operation and closure;

3) assurance that the site can be cared for and all problems detected, remedied or avoided or compensation provided, in the long term.

The Blueprint makes reference to the general purpose and need for a perpetual care program. This Appendix is consistent with the Task Force Report and expands on the Blueprint. It provides additional information and discusses options considered in the development of perpetual care program proposals.

2.0 INTRODUCTION AND BACKGROUND

Three funding mechanisms could be developed to meet provincial environmental protection goals and objectives. These mechanisms, their capability and proposed application are discussed in the following sections. It is important that these mechanisms be clearly understood if an effective perpetual care program is to be developed.

2.1 ENVIRONMENTAL IMPAIRMENT INSURANCE

Most owners and operators of waste management facilities carry general liability insurance, which covers the liability of the insured to third parties for personal injury or property damage off-site caused by sudden, accidental occurrences.

A relatively new type of insurance coverage, called environmental impairment insurance, is now available in Ontario. This insurance differs from general liability insurance and covers off-site liability to third parties caused by non-sudden occurrences, whether they are accidental or not.

At least one large municipality and several private firms in Ontario have purchased this type of insurance coverage. While this is a positive indication that the value of this new form of insurance is recognized, most owners and operators of waste management facilities in Ontario do not yet carry this type of coverage.

2.2 FINANCIAL GUARANTEES

Approvals issued in the past for waste management facilities have, when necessary, included conditions requiring the establishment of funds or the provision of security for particular purposes. The present statute paves the way for general requirements that persons other than municipalities post security to ensure that waste management operations will be conducted properly. These provisions have not been used because of the high degree of variation among facilities. The appropriate requirements for each facility would vary, depending on location, geology, soil type, waste type, proposed

method of operation, environmental risks, and many other factors. Accordingly, requirements to be applied on a site specific basis have not as yet been determined in a manner that would allow a general regulation to be developed.

Financial guarantees can take various forms, including setting aside a sum of money or other valuable assets and posting a bond. The requirement to deposit an appropriate sum is relatively straightforward while the use of a bond is somewhat more complex.

In simple terms, a bond (sometimes called a surety bond or performance bond) is an agreement by one party (the surety) to be responsible to another party (the obligee - in this case, the Ministry of the Environment, MOE) for the obligation or conduct of a third party (the principal, i.e. the operator or owner of a facility). If the principal fails to fulfill obligations under the bond, the surety indemnifies the obligee (MOE) for any loss sustained or costs incurred as a result of such default, up to the amount of the bond.

In the event that a loss does occur, the surety usually has the right of subrogation to recoup its loss from the principal. The principal (owner-operator) remains primarily liable. This creates a considerable incentive for any waste facility owner or operator to perform properly in the areas covered by financial guarantees.

Financial guarantees can be used to ensure compliance or provide protection in areas such as:

- statutory and regulatory requirements
- conditions of approval
- fraud or misrepresentation
- bankruptcy
- self-insurance

The financial guarantee would only be seized where default on one of the items covered resulted in cost or loss or required government intervention and expenditure (for example, if there were on-site damage or certain work responsiblities which were not completed as expected).

2.3 WASTE MANAGEMENT SECURITY FUND

The concept of a waste management security fund was introduced in 1979 under the name "Perpetual Care Fund". The primary reason for this funding mechanism is to provide protection from pollution damage not covered by the other two funding mechanisms.

A waste management security fund is a source of monies to provide for the resolution of environmental problems and to pay claims that are not otherwise provided for by financial guarantees and environmental impairment insurance.

Procedures for the creation and application of a waste management security fund, alternative uses of the fund, and its relation to other funding mechanisms referred to above are discussed in subsequent sections of this document.

2.4 DISCUSSION

The use and availability of the three funding mechanisms can vary widely. Each of the funding mechanisms can be applied to most stages of a facility's life and to most waste management sectors (i.e. private waste companies, municipalities and industries). Section 3.0, Perpetual Care Program Alternatives, discusses the capabilities and flexibility of each mechanism.

In determining the application of each mechanism, one should take into account:

- the sectors to which the mechanism might apply, and

- the stage in the life of a waste management facility.

The stages in the life of a facility can be described as follows:

<u>The Approvals Stage</u>

This stage covers three phases occurring prior to formal approval, which are investigation, design and hearings. Activities in this

stage do not include any site preparation. This stage concludes with issuance of the certificate of approval.

The Active Stage

Several phases of activity occur during this stage.

Development Phase:

During this phase the facility is developed to permit receipt of waste.

Waste Receipts Phase:

The first and last loads of waste will be received during this phase.

Closure Phase:

Those activities associated with appropriate site closure will be implemented and be in place at the end of this phase.

The Ministry proposes to formally recognize the conclusion of the active stage by issuing a document to the site owner or operator that will identify the site as one which can no longer receive waste and certify agreement with closed site conditions.

Closed Stage

The closed stage consists of two distinct phases.

Post-Closure Phase:

This phase includes monitoring and operational control activities that are required immediately after closure. For landfills this phase would be expected to extend for a period of years. This phase would terminate when the proponent has adequately demonstrated that there is little likelihood of future problems and indicated any ongoing monitoring or control measures necessary. The Ministry proposes to issue appropriate documentation to the site owner or operator to certify its agreement that this phase has been completed.

Perpetuity Phase:

Any waste management facilities considered permanently closed will be in this phase in perpetuity. This phase includes the continuance of monitoring and maintenance of operational systems considered necessary for the safety of the site.

3.0 PERPETUAL CARE PROGRAM ALTERNATIVES

There are numerous alternatives for the proposed application of the three funding mechanisms. Certain situations could be financially protected by the waste management security fund. Alternatively, in certain cases a similar situation might be protected by utilizing financial guarantees. The choice as to which funding mechanism is most appropriate and the advantages and disadvantages associated with each is discussed in this section. When the use of the three funding mechanisms is examined in relation to the various waste management sectors and the facility life stages involved, an additional number of alternatives emerge.

Since each of the three funding mechanisms proposed provides protection for different specific purposes, the use of all three may be necessary to provide adequate financial protection through the life of a facility.

When a preferred program proposal has been adopted, it is anticipated that it will include requirements which will apply on a phased basis to all sectors and to specified facilities. These requirements will contain proposals for facilities in all stages of their life cycle.

Three alternative programs based on the three funding mechanisms are presented to stimulate discussion. These are:

A. Utilize all three funding mechanisms for all sectors extending from immediately after the approvals stage into the perpetuity phase.

B. Utilize the three funding mechanisms selectively in relation to both the sectors concerned and the facility life stages.

C. Utilize only the waste management security fund during the perpetuity phase.

3.1 ALTERNATIVE A: Utilize all three funding mechanisms for all sectors extending from immediately after the approvals stage into the perpetuity phase (illustrated in Figure 1).

This alternative involves the use of all three funding mechanisms during the active and closed stages. It provides maximum protection, during the life of a facility. There will be off-site, accidental or not, third party insurance coverage. On-site matters will be covered by approval requirements and the work guaranteed by performance bonds or other forms of financial guarantees. Finally, the waste management fund will be available in the event of problems not covered by the other two funding mechanisms. Such comprehensive protection would, in case of a major accident, prove invaluable to all parties.

Insurance which extends into the perpetuity phase has several spin-off benefits. It would definitely lessen the coverage requirements and possibly the size requirements for the waste management security fund. Insurers would likely be closely monitoring the insured's operations and environmental protection measures to achieve minimization of risk. The presence of an independent party (the insurer) would be a valuable addition to current provincial surveillance efforts.

There are disadvantages to this alternative. It may not be necessary or reasonable to require municipalities to financially guarantee their operations. Unlike the private waste management and industrial sectors, a municipality would be unlikely to declare bankruptcy or disappear as an organized body. Requiring financial guarantees from municipalities may not be warranted. In addition, there may be difficulties that could prevent municipalities from committing finances on a long term basis.

Another disadvantage would be that the costs associated with this type of comprehensive financial protection (see section 4.2) would likely be reflected in greater costs for owners and operators. Further, if all three financial mechanisms are used and there is overlap in the protection provided, the user is paying for protection which may not be necessary.

Private waste management companies and industry may resist the requirement to maintain environmental impairment insurance in perpetuity.

FIGURE 1 - ALTERNATIVE A

	STAGES DURING THE LIFE OF A WASTE DISPOSAL SITE					
	APPROVAL STAGE	ACTIVE STAGE			CLOSED STAGE	
	Investigation, Design and Hearing	Development	Waste Receipts	Closure	Post-closure	Perpetuity
Municipal Sector		:::::::::::: ========== ++++++++++	:::::::::::::::: ========== ++++++++++++++++	:::::::::: ========== ++++++++++	:::::::::::::: ========== ++++++++++++++	:::::::::::::: ========== ++++++++++++++
Private & Industrial Sector		:::::::::::: ========== ++++++++++	:::::::::::::::: ========== ++++++++++++++++	:::::::::: ========== ++++++++++	:::::::::::::: ========== ++++++++++++++	:::::::::::::: ========== ++++++++++++++

LEGEND: Proposed Use of Funding Mechanism

ENVIRONMENTAL LIABILITY INSURANCE ::::::::::

FINANCIAL GUARANTEES ==========

WASTE MANAGEMENT SECURITY FUND ++++++++++

In the event of a bankruptcy, insurance and financial guarantee protection could be lost.

3.2 ALTERNATIVE B: Utilize the three funding mechanisms selectively in relation to both the sectors concerned and the facility life stages (illustrated in Figure 2).

This alternative eliminates some of the disadvantages associated with Alternative A. Environmental liability insurance and the waste management security fund are still fully utilized. The use of financial guarantees for the municipal sector has been eliminated. In addition, the use of these guarantees after post-closure is not required for private and industrial sectors.

The costs and the disadvantages listed in Alternative A associated with carrying the responsibility of financial guarantees into perpetuity can be avoided for all sectors without affecting the integrity of the program. Municipalities avoid the costs of financial guarantees during active stages of their facilities.

One benefit to municipalities would be expanded use of the waste management security fund. For example, since no performance bond would be in place, if an emergency occurred on-site and insufficient funds were available to rectify the problem, the fund would likely respond. The municipality would be expected to reimburse the fund. Environmental impairment insurance would not likely cover an on-site problem.

Similarly, if an emergency develops in the perpetuity phase involving private or industrial sectors, and the owner or operator of the site is unable to pay, the waste management security fund would likely respond. If the occurrence were due to misconduct of the current or previous owner or operator, the fund administrator should have the right to sue for recovery of money spent.

FIGURE 2 - ALTERNATIVE B

	STAGES DURING THE LIFE OF A WASTE DISPOSAL SITE					
	APPROVAL STAGE	ACTIVE STAGE			CLOSED STAGE	
	Investigation, Design and Hearing	Development	Waste Receipts	Closure	Post-closure	Perpetuity
Municipal Sector		::::::::::::	::::::::::::::::	:::::::::	::::::::::::::	::::::::::::::
		++++++++++++	++++++++++++++++	+++++++++	++++++++++++++	++++++++++++++
Private & Industrial Sector		::::::::::::	::::::::::::::::	:::::::::	::::::::::::::	::::::::::::::
		==========	==========	=========	==========	
		++++++++++++	++++++++++++++++	+++++++++	++++++++++++++	++++++++++++++

LEGEND: Proposed Use of Funding Mechanism

ENVIRONMENTAL LIABILITY INSURANCE ::::::::::

FINANCIAL GUARANTEES ==========

WASTE MANAGEMENT SECURITY FUND ++++++++++

3.3 ALTERNATIVE C: Utilize only the waste management security fund during the perpetuity phase (illustrated in Figure 3).

This option contains all of the benefits addressed in Alternatives A and B and eliminates disadvantages associated with maintaining environmental impairment insurance in perpetuity. In general terms this alternative transfers financial liability for the site or facility for all sectors in the perpetuity phase from the owner to the waste management security fund.

3.4 CONCLUSION

The three alternatives discussed illustrate various ways in which the three available funding mechanisms can be utilized.

Alternatives utilizing different combinations of the three funding mechanisms are possible with each alternative having advantages and disadvantages. Submissions from the public, industry and municipalities will assist in selecting a favoured alternative, but there appear to be obvious advantages in utilizing a carefully orchestrated mix of all three available funding mechanisms. A more detailed discussion of the individual funding mechanisms follows.

FIGURE 3 - ALTERNATIVE C

	STAGES DURING THE LIFE OF A WASTE DISPOSAL SITE					
	APPROVAL STAGE	ACTIVE STAGE			CLOSED STAGE	
	Investigation, Design and Hearing	Development	Waste Receipts	Closure	Post-closure	Perpetuity
Municipal Sector		:::::::::::: ++++++++++++	:::::::::::::::: ++++++++++++++++	::::::::: +++++++++	:::::::::::::: ++++++++++++++	++++++++++++++
Private & Industrial Sector		:::::::::::: ========== ++++++++++++	:::::::::::::::: ========== ++++++++++++++++	::::::::: ========= +++++++++	:::::::::::::: ========== ++++++++++++++	++++++++++++++

LEGEND: Proposed Use of Funding Mechanism

ENVIRONMENTAL LIABILITY INSURANCE :::::::::

FINANCIAL GUARANTEES =========

WASTE MANAGEMENT SECURITY FUND +++++++++

4.0 PERPETUAL CARE PROGRAM FUNDING REQUIREMENTS

4.1 ENVIRONMENTAL IMPAIRMENT INSURANCE

Environmental impairment insurance is currently available in Ontario from more than one insurer. This type of coverage goes beyond the general liability insurance, which most businesses carry. General liability insurance covers sudden and accidental events. Environmental impairment insurance extends to non-sudden occurrences whether they are accidental or not. Coverage would apply, for instance, to unexpected harm caused off-site by leachate migration following years of careful, purposeful landfill site operations. Any information on experience with this form of insurance would be welcome as response to the Blueprint.

While insurance is primarily intended to protect the insured against potential liabilities, the Ministry's objective with respect to such insurance is assured availability of funds to compensate third parties injured by environmental pollution. One important consideration is elimination of any gaps, for an individual insured, between his general liability coverage and environmental impairment coverage. This could most expediently be achieved by a single policy embodying the full range of desirable coverage.

There are several important points to consider if the use of such insurance is to be completely effective:

- The insurance should apply to specified facilities during the active stage and post-closure phases.

- Coverage should be required by law.

- Specific details of required coverage should provide for appropriate variation among facilities and would appear in regulations.

- Proposals for mandatory insurance should be contingent upon availability of appropriate insurance at reasonable cost from more than one insurer.

4.1.1 Environmental Impairment Insurance Options

Option 1

Owners and operators from all sectors could be required to obtain environmental impairment insurance. For private and industrial sector owners and operators, this should pose few problems and is likely preferred. Group insurance programs, such as those commonly organized for professional and other groups, could be established.

Insurance covering owners and operators, particularly in the case of municipalities, could have the added potential benefit of providing coverage for closed facilities if these were specifically identified in the policy. This has positive implications that might ease the demands on a waste disposal security fund.

Option 2

The Provincial government could take out a single insurance policy which named certain parties (and facilities) as insured and recover its costs from the site owners.

The alternative of a single policy taken out by the Province, while attractive from a number of practical viewpoints, such as ease of administration, simplification of regulatory requirements and possible cost advantages, might also have a number of drawbacks. It could have the potential of removing business from the insurance industry at local levels. It could place all business in the hands of one insurer and thereby discourage the development of new sources for environmental impairment insurance. There is also the possibility that government activity in this area might be construed as interfering with free enterprise. Unless properly designed and administered, this option could reduce the incentive of operators to run well managed sites.

Option 3

Certain large municipalities and industries do not favour mandatory insurance. They feel that their financial base is sufficient to cover all risks which would be assumed by insurance. They suggest, therefore, that insurance be voluntary if they can show their own financial capability.

Conclusions

It would appear environmental liability insurance should be mandatory in order to provide the maximum degree of protection to third parties; however, flexibility may be desirable and could be acceptable with appropriate precautions. Comments would be appreciated.

4.1.2 Environmental Impairment Insurance - Who Should Have It?

If environmental impairment insurance is required to cover municipal, private and industrial waste management sectors, it is suggested that the insurance would be needed for specified waste management facilities in the active stage and in the post-closure phase. There is also capability to extend coverage to those sites which have been or will be closed.

An owner or operator could be allowed the flexibility to obtain complete insurance coverage or to self-insure all or part of the risk. Use of self-insurance would require proof of adequate financial resources and/or provision of financial guarantees.

4.1.3 Requirements for Environmental Impairment Insurance

The basic requirements for environmental impairment insurance would include the following:

° The basic coverage should include off-site, sudden and non-sudden occurrences, whether they are accidental or not, which result in:

(a) personal injury
(b) property damage
(c) environmental contamination that interferes with an individual's rights

° Definitions of environmental impairment should be comprehensive.

° Deductible limits and coverage limits should be set by regulation.

Limits carried for any type of insurance are normally selected on the basis of the amount or size of claims likely to arise. The selection of minimum limits for insurance to be carried by the various classes of risk under consideration will, in the absence of any reliable actuarial information, be a question for debate. The Ministry is prepared to review records to determine the cost associated with incidents involving waste disposal sites.

Minimum insurance standards could be set by regulation. The approval authority could also have the opportunity, in specific cases, to increase standards when appropriate. This would be achieved by conditions placed on Certificates of Approval which would be subject to normal appeal procedures. Coverage in the order of several millions of dollars would seem to be necessary but this would depend on the size and type of facility and the nature of the work being handled.

The amount of deductibles in an insurance policy reflects the financial position of the insured, the extent of the risk one is prepared to assume or self-insure, and the extent of the risk that the insurer required the insured to accept. It is desirable that coverage be such that a third party is able to recover the total claim from the insurance company. The question of deductibles then becomes a matter to resolve solely between the insured and the insurer.

The requirement of insurance coverage could be phased in by regulation after consultation with the insurance industry in

Canada and elsewhere. This discussion will also involve people engaged in waste management activities.

4.1.4 Statutory and Regulatory Changes

To implement such a program, it would be necessary to enact statutory requirements consistent with the principles enunciated. The basic requirements proposed would appear in legislation with provision for establishment of detailed requirements by regulation or by conditions of approval. The matters to be addressed include:

(a) Comprehensive environmental impairment insurance under a single policy cover would be required for owners and operators of waste management facilites.

(b) Regulations would classify facilities and establish appropriate deductible levels, coverage limits, risks to be covered and permissible exclusions of risks.

(c) Different requirements for different classes of existing facilities would be phased in by regulation.

(d) The Director would be given the authority to set more stringent standards than required by regulation by conditions of approval.

(e) Notification of change in coverage or cancellation of coverage would be required.

4.2 FINANCIAL GUARANTEES

An acceptable program should provide appropriate financial guarantees to cover the active stage for any facility, and should also cover existing facilities which have already been closed.

The concept of the bond as a method of providing financial guarantees has the following purposes and benefits:

> The bond would indemnify the Ministry of the Environment on behalf of the public interest against loss or damage that might occur if, for example, conditions of approval were breached.
>
> The Ministry of the Environment, by the requirement of a bond, can minimize the resources required to make exhaustive investigations into the financial qualifications of the principal. The bond is a practical convenience to the Ministry of the Environment and to the principal because it avoids the necessity of a cash deposit as a guarantee of the owner/operator's compliance with the law. This approach has the added benefit of freeing the principal's finances for use in the operation of a business. It also has the benefit of easing administrative requirements for the government, which may have to hold and otherwise manage cash deposits.
>
> Potentially a bond can be held by the Ministry of the Environment in perpetuity to protect the public interest and any third party suffering or claiming losses which may come to light after the facility has been closed for some period. Most private companies only issue bonds for a stated period, usually not in excess of about ten years or, alternatively, for a specific project that will be completed.

Financial guarantees could be required to cover the essentials of on-site development operations, such as gas and leachate monitoring, and associated control, collection, treatment and disposal systems. They could also be required for site closure items such as application of

final cover, landscaping and the work necessary to prepare the site for its ultimate intended use. Guarantees could also cover major on-site contingencies since it appears that these may not be covered by appropriate levels of environmental impairment insurance. Financial guarantees applying to the closed stage might be required to ensure compliance with certain monitoring and operational aspects. Financial guarantees could also be required to guarantee claims made from the deductible limits of insurance coverage to the first dollar.

Financial guarantees would not normally be required until after the appropriate approvals have been issued. The guarantee, however, could be required before any waste receipts. The portion of the financial guarantees intended to deal with site closure could be a fund built up over the active life of the site.

All sectors would be expected to provide estimates of required funds to cover all stages of the site's life as part of their environmental assessment documentation. Proponents would be expected to provide an estimate of the funds necessary to cover, for example, potential problems during site operation and site closure, including provision of cover material and installation of monitoring systems and gas or leachate control systems. Proponents should be prepared to defend these estimates at a public hearing and indicate how such funds would be provided.

The guaranteed amounts should be subject to periodic review, at the request of the owner and operator or the Ministry. Reasons for such a review might include:

- staging of site development proposals
- the completion of works which are guaranteed
- the need for additional guarantee amounts for environmental protection measures or monitoring.

Financial guarantees should normally remain in effect until the activities covered by the guarantees have been satisfactorily completed. Ministry inspections of these activities will take place.

Certain statutory provisions would be necessary to implement a financial guarantee scheme.

The provisions are as follows:

(a) Authority to require provision of financial guarantees by different classes of facilities and authority to establish necessary administrative details by regulation.

(b) Authority for the Director to spend funds or require that they be spent if the operator does not carry out necessary work.

4.3 WASTE MANAGEMENT SECURITY FUND

A waste management security fund is also suggested as a means of covering risks not met by either financial guarantees or environmental impairment insurance. The fund could be built up by a surcharge on disposal fees at approved waste management facilities.

The fund would need to be immediately available to provide compensation or other types of environmental protection action at any stage of activity. The fund could potentially assume environmental responsibility at any stage of activity. The fund administrators must be able, therefore, to recover any disbursements from the parties who have ownership or control or who are at fault. For example, problems might be due to the operator's negligent or wilful failure to comply with legislation, regulations or conditions of approval.

There are some similarities between the proposals for the waste management security fund and the existing Waste Well Disposal Security Fund. In the event that a waste management security fund is established it seems reasonable to combine the two funds under clear rules for management and use of the fund.

4.3.1 Assessment of Fund Size

The number of claims against such a fund would determine the extent of resources required. The demand for fund resources can

be reduced if waste facilities are properly operated and closed and will depend upon usage of environmental impairment insurance and financial guarantees.

Fund expenditures cannot be predicted with any high degree of certainty. A reasonable initial target would be to raise about $30 million, in current dollars, during the next ten years. Interest would be accumulated, but the balance would likely be reduced by actual expenditures. In suggesting this amount, U.S. experiences have been considered as have the results from Ontario's Waste Site Identification Program and waste disposal problems encountered in Ontario in recent years.

The U.S. Experience

Experience with the U.S. Superfund indicates that remedial work is required at more than 400 industrial waste disposal locations. At 95 of these, actual and committed expenditures already average more than one million dollars (U.S.) per site. Most of the wastes of concern in the U.S. have not been produced in Ontario.

Based on U.S. experience, if expenditures were solely proportional to population, Ontario would require $19 million (Canadian) to undertake equivalent work. With due allowance for contingencies, this figure is close to the Ministry's estimate of Ontario's needs.

The Waste Site Identification Program

Ontario recently undertook a program to locate and assess abandoned waste disposal sites closed before 1971. The results to date provide no evidence that major expenditures will be required with respect to these sites.

Approximately 1,400 sites were identified. Of these, 197 with the greatest potential for environmental impact were studied in more detail. In only three cases were off-site impacts observed.

Active Sites

A current study evaluating active sites will yield additional information that will help assess site risks and contribute to an understanding of the size of fund required.

4.3.2 Suggestions for Generation of Funds

Loans

Initially, it may be necessary for the fund to borrow money from a lending institution or the Province to provide an operating capital base. Additional advances may also be necessary to ensure that the working balance remains sufficient. Loans would be repaid from the funds accrued from surcharge payments.

Waste Disposal Surcharges

Such a fund should operate on a 'user pays' basis. Therefore, it is suggested that it would be financed by surcharges on all wastes received at all disposal facilities included in the program. The surcharges should be established by regulation and varied as necessary. Surcharges for hazardous and hauled liquid industrial wastes could be higher than those for domestic wastes, because more serious problems are likely to arise from their handling and disposal.

If, for example, the surcharges for municipal and controlled waste were about $0.30 per tonne and about $3.00 per tonne for hauled liquid industrial and hazardous waste, over a period of ten years they would yield approximately $30 million, together with accrued interest. Data on estimated waste quantities and the anticipated yields of various surcharges after 5, 10 and 20 years are shown in Table 1.

Other Potential Income

In addition, about $0.25 million from The Waste Well Disposal

Security Fund could be transferred to the waste management security fund.

4.3.3 Statutory and Regulatory Changes Suggested

The statutory amendments necessary to provide for the fund include:

a. Establish the fund;

b. Collapse into it The Waste Well Disposal Security Fund;

c. Provide for interest (by Order in Council) on balances in the fund;

d. Establish different surcharges, by regulation, for different types of waste;

e. Prescribe the claims for which the fund would be available;

f. Authorize the fund to recover money paid out from those liable.

TABLE 1

WASTE SURCHARGES AS A BASIS FOR ESTABLISHING A WASTE MANAGEMENT SECURITY FUND

ESTIMATED WASTE QUANTITIES AND DISPOSAL COSTS

WASTE TYPE	ANNUAL QUANTITIES	AVERAGE DISPOSAL COST
Municipal & Controlled Waste	7 Million Tonnes	$ 6 Per Tonne
Hauled Liquid Industrial & Hazardous Waste	0.3 Million Tonnes	$60 Per Tonne

ESTIMATED YIELDS FOR VARIOUS SURCHARGES

TYPE OF WASTE	SURCHARGE (PER TONNE)		
Municipal & Controlled Waste	$ 0.30	$ 0.60	$ 1.20
Hauled Liquid Industrial & Hazardous Waste	$ 3.00	$ 6.00	$12.00
	SURCHARGE YIELDS (MILLIONS OF DOLLARS)		
Yield after 5 Years	15	30	60
10 Years	30	60	120
20 Years	60	120	240

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